

up copy of each rewritten claim (37 C.F.R. §1.121(c)(1)(ii)). Reconsideration in view of the above amendments and following remarks is respectfully requested.

Entry of the Amendment is proper under 37 C.F.R. §1.116 since the Amendment: a) places the application in condition for allowance for the reasons discussed herein b) does not raise any new issues requiring further search and/or consideration as the Amendment amplifies issues previously discussed throughout prosecution c) and places the application in better form for appeal should an appeal be necessary. The Amendment is necessary and was not earlier presented because it is made in response to arguments raised in the final rejection. Entry of the Amendment is thus respectfully requested.

Applicant notes that U.S. Patent No. 5,122,705 to Kusase et al., submitted as part of the Information Disclosure Statement filed on October 29, 1999 is not indicated as considered by the Examiner. A copy of the executed form PTO-1449 is attached hereto. Applicant respectfully requests the Examiner indicate the reference has been considered.

The drawings are objected to under 37 C.F.R. §1.83(a) as not showing every feature of the invention specified in the claims. The Office Action identifies specific language in claims 16-19 as not being shown in the drawings.

Applicant submits that the two lead wires X1 and Y1 are shown in Fig. 5 passing through and supported by a terminal 781 that is disposed proximate input terminals 71a and 72a of the rectifier unit. The connecting points to the stator, as found in claim 16, are shown in Fig. 3. In claim 17, the plurality of input terminals positioned at the outer periphery of the rectifier wherein the input terminal extends toward the respective wire holes may be seen in Figs. 4 and 9. In claim 18, the diodes mounted on the rectifier and connected to at least two wires via the input terminal may be seen in Figs. 2 and 4. In Fig. 19 the pair of passages for supporting the wires may be seen in Fig. 5. Accordingly, the drawings clearly show the

invention claimed in claims 16-19. Therefore, Applicant respectfully requests the objection to the drawings be withdrawn.

The Office Action rejects claim 19 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. Specific language in claim 19 is identified as forming the basis for the rejection. The claim has been amended in reply to the rejection. Therefore, Applicant respectfully requests the rejection under 35 U.S.C. §112, second paragraph be withdrawn.

The Office Action rejects claims 1-19 under 35 U.S.C. §103(a) as unpatentable over U.S. Patent No. 6,144,136 to Umeda et al. (Umeda) in view of U.S. Patent No. 5,949,166 to Ooiwa et al. (Ooiwa) and U.S. Patent No. 5,682,070 to Adachi et al. (Adachi). The rejection is respectfully traversed.

Neither Umeda nor Ooiwa disclose or suggest an ac generator for a vehicle comprising a frame having a wall supporting the stator at one side and a rectifier unit at another side, the wall having a lead wire hole formed therein at a portion corresponding to one of the input terminals to pass at least two of the output lead wires therethrough to be respectively connected to one of the input terminals.

The Office Action admits that Umeda does not disclose output lead wires being used for the stator and fin parts in the ac generator and combines Ooiwa to overcome the admitted deficiencies.

Ooiwa discloses a rectifier which is capable of improving cooling performance (col. 1, lines 42-47). However, Ooiwa does not disclose a lead wire hole formed at a wall of a frame to pass at least two of the output lead wires therethrough as recited in the claims.

Rather, Ooiwa discloses lead wires from positive and negative diodes connected to small and large fins. The lead wires do not pass through the frame as recited in Applicant's

claim 1 but only connect the small fin 501 and large fin 503 located at the same side of the frame 3b. Also, the lead wires do not connect a stator to a rectifier as recited in Applicant's claims (see Figs. 2 and 3; col. 2, lines 23-30 of Ooiwa). In other words, the common fin 503, negative fin 501, phase windings and diodes are all housed within the rectifier on one side of the frame wall. Though Ooiwa may show a plurality of stator terminal connectors at Fig. 3, Ooiwa does not disclose or suggest a lead wire hole in the frame wall at a portion corresponding to one of the input terminals to pass at least two output lead wires therethrough to connect the rectifier to the stator.

Furthermore, even if Ooiwa did disclose lead wires penetrating the frame wall, the apparatus disclosed in Ooiwa would require a greater number of holes in the frame wall to pass the single lead wires disclosed in Ooiwa therethrough. The larger number of wire terminals would necessitate many more lead wire holes than the claimed invention. The large number of holes found in such ac generators, and the resulting fan noise, is the problem Applicant is addressing. It is well known in the art that as the number of holes increases, the wall becomes more uneven, thereby increasing the noise level of the ac generator as well as decreasing its efficiency. Therefore, Ooiwa even if Ooiwa did disclose lead wire holes as recited in the claims, Ooiwa would merely disclose the deficiencies known in the art that Applicant's invention overcomes.

Therefore, neither Umeda or Ooiwa, whether considered singularly or in combination, disclose or suggest the subject matter of claims 1-19.

The Office Action, at page 4, combines Adachi with Umeda "for the sake of showing that it is commonly known in the art to make a lead wire hole in an alternator". Applicant describes such a structure in the Description of Related Art found at page 1, lines 19-21 of the specification. However, as stated above, as the number of holes increases, the wall becomes more uneven, thereby causing a loud fan noise. Moreover, because of the number of

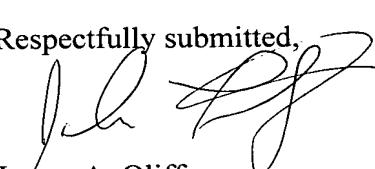
insulators to be inserted into the holes increases, the production cost also increases. It is such lead wire holes in the alternator and problems related to such holes that Applicant's invention overcomes. Accordingly, Applicant respectfully submits that the use of Adachi to show that it is commonly known in the art to make lead wire holes is moot. Therefore, the rejection of claims 1-19 under the combination of Adachi and Umeda is moot.

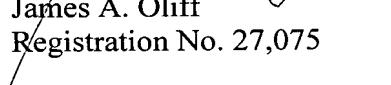
Even were Adachi combined with Umeda and/or Ooiwa , the resulting combination would not render claims 1-19 obvious because none of the applied references suggest or discloses an ac generator as recited in the claims. Therefore, Applicant respectfully requests the rejection of claims 1-19 under 35 U.S.C. §103(a) be withdrawn.

In view of the foregoing, reconsideration of the application is requested. It is submitted that the claims as presented herein patentably distinguished over the applied references and fully meets the requirement of 35 U.S.C. §112. Accordingly, allowances of claims 1-21 is respectfully solicited.

Should the Examiner believe that anything further is desirable in order to place this application in better condition for allowance, the Examiner is invited to requested to contact the undersigned representative at the telephone number listed below.

Respectfully submitted,


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Attachment:

Appendix
Executed Form PTO-1449

Date: February 25, 2002

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DEPOSIT ACCOUNT USE
AUTORIZATION
Please grant any extension
necessary for entry;
Charge any fee due to our
Deposit Account No. 15-0461

APPENDIX

Changes to Claims:

The following is a marked-up version of the amended claim:

1. (Twice Amended) An ac generator for a vehicle, comprising:

a rotor having a shaft;

a stator having a multi-phase stator winding which has a plurality of output lead wires for respective phase voltages;

a rectifier unit having a plurality of input terminals respectively connected to said output lead wires; and

a frame having a wall supporting said stator at one side thereof and said rectifier unit at another side, said wall having a lead wire hole formed therein at a portion corresponding to one of said input terminals to pass for at least two of said output lead wires therethrough to be respectively connected to said one of said input terminals.

9. (Twice Amended) An ac generator for a vehicle, comprising:

a multi-poled rotor;

a stator having a multi-phase stator winding which has output lead wires for multi-phase output voltages, respective two of said output lead wires forming a plurality of bundles;

a full-wave rectifier unit having input terminals disposed to correspond to said bundles and respectively connected to said output lead wires; and

a frame having a wall supporting said stator at one side thereof and said rectifier unit at another side, said wall having lead-wire-holes formed therein and positioned to correspond to said bundles input terminals of said rectifier unit to pass said output lead wires therethrough to be respectively connected to said input terminals.

16. (Amended) An ac generator for a vehicle, comprising:

a rotor having a shaft;
a stator having a multi-phase stator winding, said stator winding having a plurality of output lead wires for respective phase voltages;
a rectifier unit having input terminals respectively connected to said output lead wires; and

a frame having a wall that supports said stator at one side thereof and supports said rectifier unit at another side, said wall having a plurality of lead wire holes formed therein at portions corresponding to said input terminals to pass said output lead wires therethrough to respectively connect to said input terminals each of said input terminals being positioned proximate respective lead wire holes, each of said input terminals supporting at least two of said lead wires, wherein each of said at least two lead wires pass through respective lead wire holes proximate respective input terminals to electrically connect to said stator.

17. (Amended) An ac generator according to claim 161, wherein each of said plurality of input terminals is positioned at an outer periphery of said rectifier unit, and wherein each input terminal extends from said rectifier unit toward respective wire holes.

19. (Amended) An ac generator according to claim 173, wherein each of said terminal member plurality of input terminals has a pair of passages for supporting each of said at least two wires, each of said passages opening toward a respective lead wire hole for allowing ease of insertion of each lead wire into a respective one of said passages.